

REMARKS

Claim 32 has been canceled. Claim 1 has been amended to include the features of Claim 32 to more particularly define Applicants' claimed subject matter, and to more clearly define the physical interface. Support for the amendment can be found throughout the specification. Claim 25 has been amended to correct an informality. Claims 33-35 have been amended to reflect proper dependencies in view of the amendment of Claim 1. No new matter has been added. After entry of this Amendment, Claims 1-31 and 33-39 remain pending. Reconsideration and allowance of the present application based on the following remarks are respectfully requested.

Applicants thank the Examiner for conducting a personal interview with Applicants' representative on February 17, 2004. The substance of the interview is captured in these remarks.

In the Office Action, claims 1-10, 14-31, and 39 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,915,673 ("Kazerooni '673"). Applicants respectfully traverse this rejection.

Claim 1 has been amended to more clearly define Applicants' claimed subject matter. Claim 1, as amended, is directed to a multi-function hub for use in an assist system that includes, *inter alia*, a physical interface that is configured and arranged to be a central interface point for an operator of the assist system, and a computational node that is disposed on the physical interface. The computational node includes programmable logic for implementing program controlled functions. The hub also includes an input/output ("I/O") interface that is disposed on the physical interface and is adapted to communicate with the computational node and a plurality of other computational nodes. The I/O interface communicates with the plurality of other computational nodes via a common data link and uses a digital communication protocol to communicate with the plurality of other computational nodes via the common data link.

In contrast, Kazerooni '673 teaches an end-effector 222 that sends signals to a **separate** controller 221 via a signal cable 223. (Kazerooni '673 at col. 14, lns. 49-53; FIGs. 11-16.) Kazerooni '673 does not disclose or suggest a multi-function hub that includes, *inter alia*, a computational node disposed on the physical interface that includes programmable logic for implementing program controlled functions, and an I/O interface disposed on the physical interface that is adapted to communicate with the computational node and to

communicate with a plurality of other computational node via a common data link and uses a digital communication protocol to communicate with the plurality of other computational nodes via the common data link, as recited by claim 1.

In the Office Action, on page 9, the Examiner states “Applicant asserts therefore by inference that Applicant’s system does not have a separate controller. However, Applicant’s system uses a separate controller (105) or (110).” (Office Action, page 9 at lines 6-8.) Applicants respectfully direct the Examiner’s attention to the specification at page 20, beginning at line 4. Part 105 is defined as a “hub,” which is what Applicants’ claims are directed to. Additional description of the hub 105 is provided, for example, in the specification beginning at page 28, line 1, and Figures 13-16.

Accordingly, Applicants respectfully submit that claim 1, and the claims that depend therefrom, are patentable over Kazerooni ‘673 and respectfully request that the rejection be withdrawn.

Moreover, U.S. Patent No. 6,386,513 (“Kazerooni ‘513”) does not make up for the deficiencies of Kazerooni ‘673 as Kazerooni ‘513 also teaches an end effector 17 and a separate controller 20. Kazerooni ‘513 does not disclose or suggest a multi-function hub that includes, *inter alia*, a computational node disposed on the physical interface that includes programmable logic for implementing program controlled functions, and an I/O interface disposed on the physical interface that is adapted to communicate with the computational node and to communicate with a plurality of other computational node via a common data link and uses a digital communication protocol to communicate with the plurality of other computational nodes via the common data link, as recited by claim 1.

In the Office Action, claims 11-13 and 32-38 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Kazerooni ‘673 in view of Yuan et al. (U.S. Patent No. 4,942,538). Applicants respectfully traverse this rejection.

Claims 11-13 and 32-38 depend from claim 1. As discussed above, claim 1 and the claims that depend from claim 1, are patentable over Kazerooni ‘673. Yuan et al. does not make up for the deficiencies of Kazerooni ‘673. Yuan et al. merely discloses a telerobotic system that includes a robot manipulator 10, a hand controller 18, and a separate computer 12. (Yuan et al. at col. 4, lns. 9-59; FIGs. 1 and 4.) Yuan et al. does not disclose or suggest a multi-function hub for use in an assist system that includes, *inter alia*, a computational node disposed on the physical interface that includes programmable logic for implementing program controlled functions, and an I/O interface disposed on the physical interface that is


adapted to communicate with the computational node and to communicate with a plurality of other computational node via a common data link and uses a digital communication protocol to communicate with the plurality of other computational nodes via the common data link, as recited by claim 1. Accordingly, Applicants respectfully submit that claims 1, 11-13 and 33-38 are patentable over Kazerooni '673 in view of Yuan et al. and respectfully request that the rejection to claims 11-13 and 33-38 be withdrawn.

In the Office Action, claims 1-31 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-29 of copending Application No. 09/781,801. Applicants are filing a terminal disclaimer herewith. Accordingly, Applicants respectfully request that the rejection be withdrawn.

All rejections having been addressed, it is respectfully submitted that the present application is in a condition for allowance and a Notice to that effect is earnestly solicited. If any point remains at issue which the Examiner feels may best be resolved through a personal or telephone interview, please contact the undersigned at the telephone number listed below.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,
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